

**subacute Uterine Inversion**  
**A case report**

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# Uterine inversion

- The uterus is partially (first degree) or completely (second and third degree) turned inside out, is a rare but serious obstetric complication. It usually occurs in the third stage of labour and is a life-threatening complication requiring prompt diagnosis and definitive management. It very rarely occurs in non pregnant patients and is then usually associated with prolapsing uterine fibroids<sup>1</sup> although it can occur with other tumours

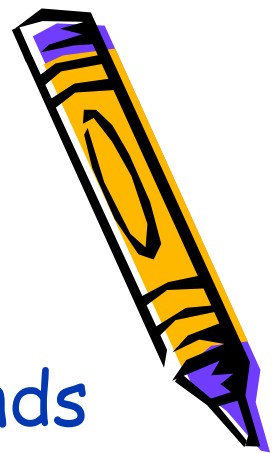


# Epidemiology

- Incidence varies widely from as many as 1 per 1584 deliveries to as few as 1 per 20,000 deliveries. It is vanishingly rare in non-pregnant patients



# Etiology and classification



- First degree - the inverted fundus extends to, but not through the cervix.
- Second degree - the inverted fundus extends through the cervix but remains within the vagina.
- Third degree - the inverted fundus extends outside the vagina.
- Total inversion - the vagina and uterus are inverted.
- Various etiological factors have been linked to uterine inversion, although there may be no obvious cause. Identified etiological factors include:



- Short umbilical cord
- Excessive traction on the umbilical cord
- Excessive fundal pressure
- Fundal implantation of the placenta
- Retained placenta and abnormal adherence of the placenta
- Chronic endometritis
- Vaginal births after previous caesarean section
- Rapid or long labours
- Previous uterine inversion<sup>5</sup>
- Certain drugs such as magnesium sulphate (drugs promoting tocolysis)
- It is not usually considered to be a consequence of mismanagement of the third stage of labour despite the factors listed above. However when the rate is high it has been ascribed to poor management of the third stage of labour.



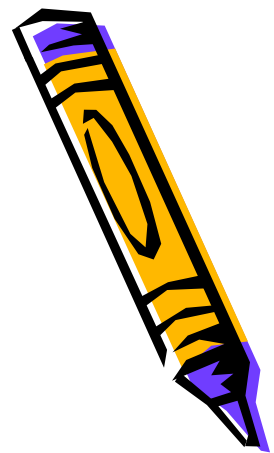
# Presentation



- Uterine inversion may present:
- Acutely- within 24 hours of delivery
- Subacutely- over 24 hours and up to the 30th postpartum day
- Chronic-more than 30 days after delivery
- The classic presentation is :
- Postpartum haemorrhage
- Sudden appearance of a vaginal mass
- Cardiovascular collapse (varying degrees)



# Management



- The important principles are:
- Treatment should follow a logical progression.
- Hypotension and hypovolaemia require aggressive fluid and blood replacement.
  - Get help. This should include the most experienced anaesthetic help available.
  - Secure further intravenous access with large bore cannulae and commence fluids with Ringers lactate.
  - Insert a urinary catheter.
- Immediate uterine repositioning is essential for acute puerperal inversion. Measures may include:
  - Get help and prepare theatres for a possible laparotomy.
  - Administer tocolytics to allow uterine relaxation. For example:
    - Nitroglycerin (0.25- 0.5 mg) intravenously over 2 minutes
    - Or terbutaline 0.1- 0.25 mg slowly intravenously
    - Or magnesium sulphate 4- 6 g intravenously over 20 minutes

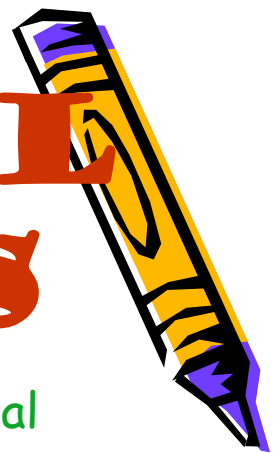


- Attempt prompt replacement of the uterus. This is best done manually and quickly as delay can render replacement progressively more difficult. Replace the uterus (with placenta if still attached) by slowly and steadily pushing upwards.
- If this fails then a general anaesthetic is usually required. The uterus may then be replaced by gradually pushing the uterus back into the pelvis through the dilated cervix manually.
- Maintain bimanual uterine compression and massage until the uterus is well contracted and bleeding has stopped.
- If this is unsuccessful a surgical approach is required. Laparotomy for surgical replacement is more usual (find and apply traction to the round ligaments) but a vaginal or even laparoscopic approach can be used.
- General anaesthetic or uterine relaxant is then stopped and replaced with uterotropics (oxytocin or ergometrine or prostaglandins).
- Start antibiotics and continue the uterotropic for at least 24 hours. Monitor closely after replacement to avoid reinversion.





# NONSURGICAL TECHNIQUES



- The literature includes descriptions of a number of nonsurgical replacement techniques. In the past, intravaginal packing was advocated, as was the use of a pessary. These procedures are now of historical interest only.
- In 1945, O'Sullivan described a method for the correction of partial inversion using simple hydrostatic pressure. In this technique, warm sterile water or isotonic sodium chloride solution is rapidly instilled into the vagina via a tube while the introitus is blocked either with an instrument such as a vacuum extractor or the accoucheur's forearm. The instilled fluid progressively distends the vaginal wall and then forces the fundus upward to restore it to its original position. Some clinicians favor a trial of this procedure in selected cases because of its simplicity.



- With the advent of potent tocolytics, the technique of manual replacement has been greatly simplified. A variant of the manipulations originally described by Johnson in 1949 is recommended. In this procedure, the operator's hand is placed in the vagina, cupping the inverted fundus in the palm. The uterus is then firmly and promptly lifted upward in the pelvic curve through the pelvis and into the abdominal cavity to the level of the umbilicus. This manipulation forces the uterine ligaments to stretch. Usually, when the inverted mass is pushed upward, the uterus promptly reverts, with the fundus returning to its anatomic position. If the reversion is successful, the uterus is held in place for several minutes. Uterotonics are then administered to firm the myometrium.





- To facilitate the uterine replacement, terbutaline, magnesium sulfate, and nitroglycerin have been successfully employed as uterine relaxants, with and without concomitant general anesthesia. In the immediate period following successful replacement, serial doses of uterotonics are administered to avoid reinversion and avoid secondary atony and hemorrhage.
- Once the correct diagnosis is made, the surgeon should act with celerity before the myometrium regains its tone. Under these circumstances, uterine replacement may be surprisingly easy and use of a tocolytic and various complex manipulations to return the uterus to its correct anatomic position may be avoided. As discussed below, a potential exception to this rule of immediate action is inversion with the placenta remaining attached to the uterus.

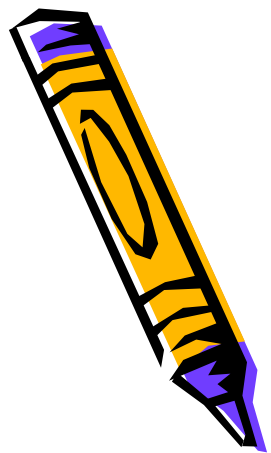


- If the placenta has not separated before the replacement operation is attempted, the most prudent approach is to leave it undisturbed until the patient is in the operating room and an anesthetic has been administered or a tocolytic given. Immediate placental removal without a successful replacement simply increases blood loss. Further, in the uncommon event of a placenta accreta, increta, or percreta, removal proves either difficult or impossible. In this setting, removal efforts markedly increase the blood loss and waste valuable time. Unfortunately, the degree of abnormal placental adherence cannot be established until removal is attempted and then it may be too late. Therefore, if inversion occurs and the placenta is still attached, the best plan is to wait for the safer environment of the operating room rather than to attempt an immediate and perhaps incomplete placental removal in another, less well-equipped setting.
- Exceptions to this general rule may be necessary in certain clinical settings where equipment or surgical assistance is limited



# SURGICAL TECHNIQUES

- If 2 or more attempts at manual replacement are unsuccessful, surgery is indicated. An abdominal approach for uterine replacement is favored. A vaginal technique has also been described but has few adherents.
- In the vaginal procedure, the bladder is dissected from the cervix, and the anterior lip of the cervix and the anterior wall of the uterus are incised to the extent necessary to permit replacement. After the uterus is repositioned, the uterine wall and cervical defects are repaired in layers. This operation is not recommended except for those especially trained in its performance.



- The favored transabdominal technique is a modification of the procedure originally described by Huntington in 1921. Deep general anesthesia is administered with agents promoting uterine relaxation. A laparotomy is performed, and the round ligaments identified. The surgeon then grasps the round ligaments with an atraumatic clamp such as a Babcock and applies gentle upward traction. The operator pulls each round ligament up into the peritoneal cavity. The round ligaments are then released and immediately grasped again more distally, akin to pulling on a rope, hand over hand. This maneuver is repeated until the fundus is completely restored to its normal configuration. If available, a second operator, applying upward pressure from below, facilitates the procedure. As the uterus begins to revert, the lower segment is squeezed like a tube of toothpaste to accelerate the process. As in the manual replacement technique, uterotonics are administered as soon as the uterus has returned to its normal shape.

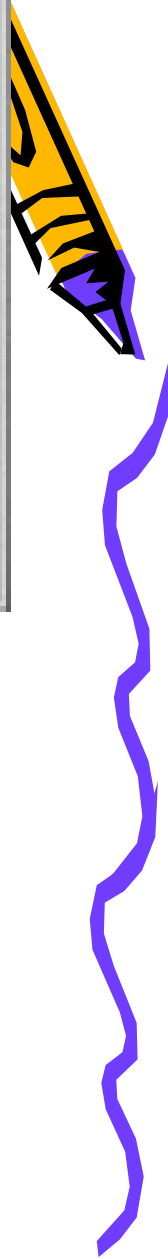
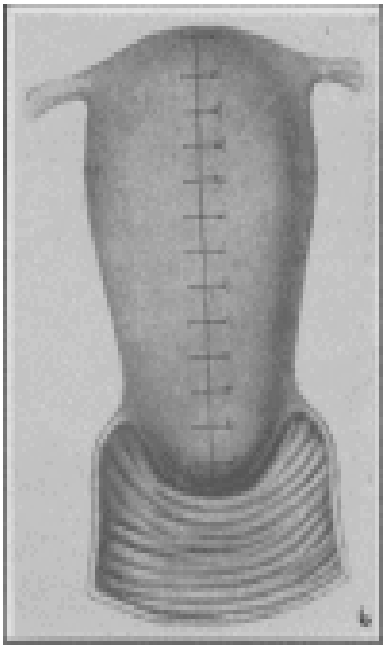
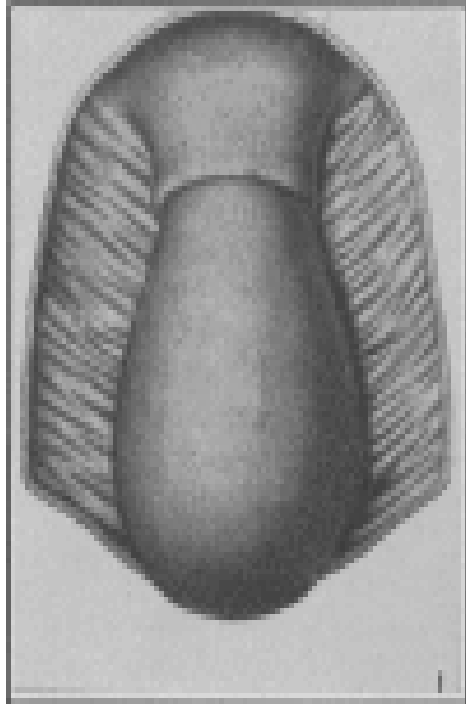
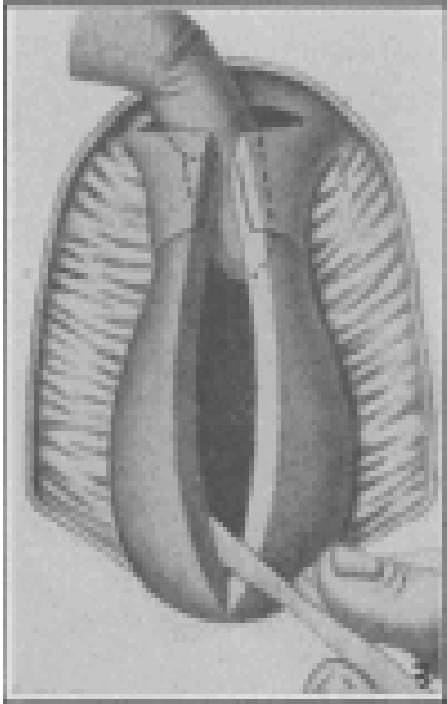
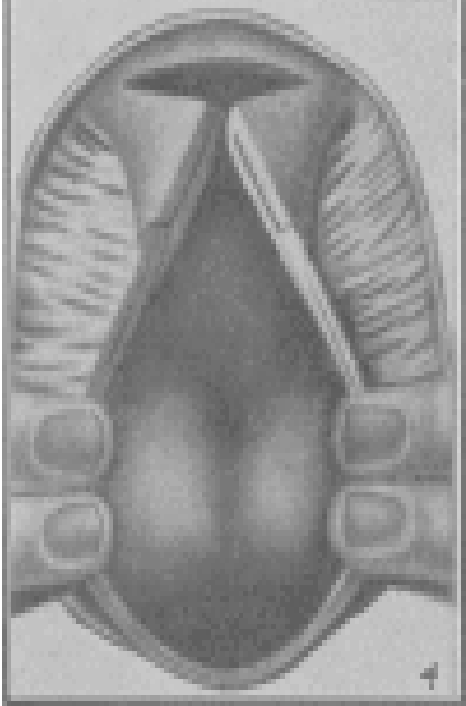




- In the unusual instance that the Huntington operation is unsuccessful, the more extensive Haultain procedure is required. In this technique, a posterior, longitudinal hysterotomy incision is performed. This acutely widens the lower uterine segment and facilitates uterine replacement. The posterior uterine wall is incised to avoid inadvertent injury to the bladder. Thereafter, upward traction on the round ligaments follows, as described above for the Huntington procedure, to complete the uterine reversion. The defect is repaired in layers.
- Regardless of the procedure employed, after repositioning, immediate uterine atony is common and prompt reinversion may occur. Administration of 15-methyl F2 alpha prostaglandin (Hemabate), high-dose oxytocin, methyl ergonovine maleate (Methergine) parenterally, or misoprostol per rectum is recommended. If magnesium sulfate was administered as a tocolytic, calcium gluconate can be administered to reverse the tocolytic effect.
- Administration of antibiotics has been advocated when inversion occurs, based on the theory that the various manipulations for replacement predispose to infection. This risk is probably small, albeit unknown. Many clinicians do administer prophylactic doses of a broad-spectrum first-generation cephalosporin or a similar drug following repositioning. There are no data concerning the necessity of such treatment.







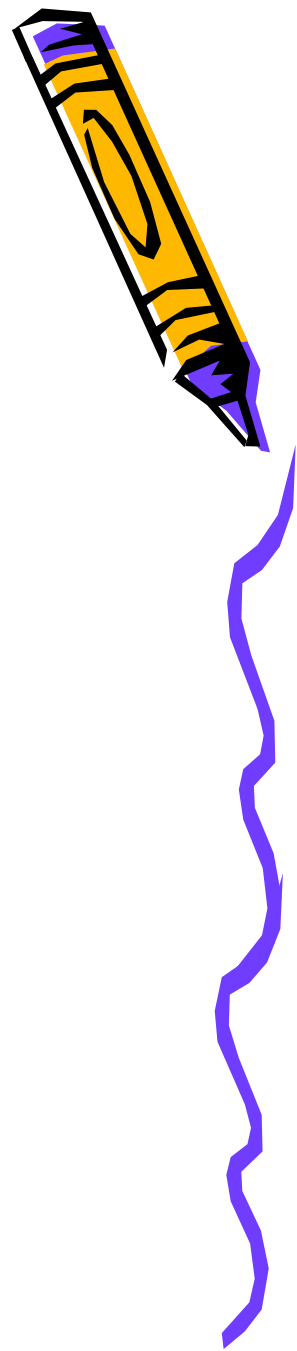


# CASE PRESENTATION



- our patient is of 19-years-old primigravida, with history of
- three spontaneous abortions.
- She delivered at home after a fast labour
- associated with abdominal expression and traction
- of the umbilical cord at delivery. The newborn is a
- female of undefined weight. Twenty four hours
- later, and following the stage of expulsion, the
- Patient suffers from bleeding and a painful vulvar
- Mass the she stay at home three days with that bleeding and
- amass proteruded through her vagina
- After that her general condition became deterurated then she
- was carried to alqurna hospital from where she transfered directly
- with out any resusitation to our hospital





- The general examination found a conscious
- and agitated severely pale young patient.
- ; the blood pressure was 110/70 mmHg,
- the heart rate was 120 beats/min and temperature
- at 38.6°. The clinical examination showed a very
- sensitive soft necrosed mass exteriorized by the
- vulva . Various diagnoses were
- suggested. This included fibroma which was
- delivered by the canal, a uterine inversion or a
- prolapsus of the canal. The abdominal examination
- did not reveal any findings .
- A diagnosis of subacute uterine inversion
- was retained.



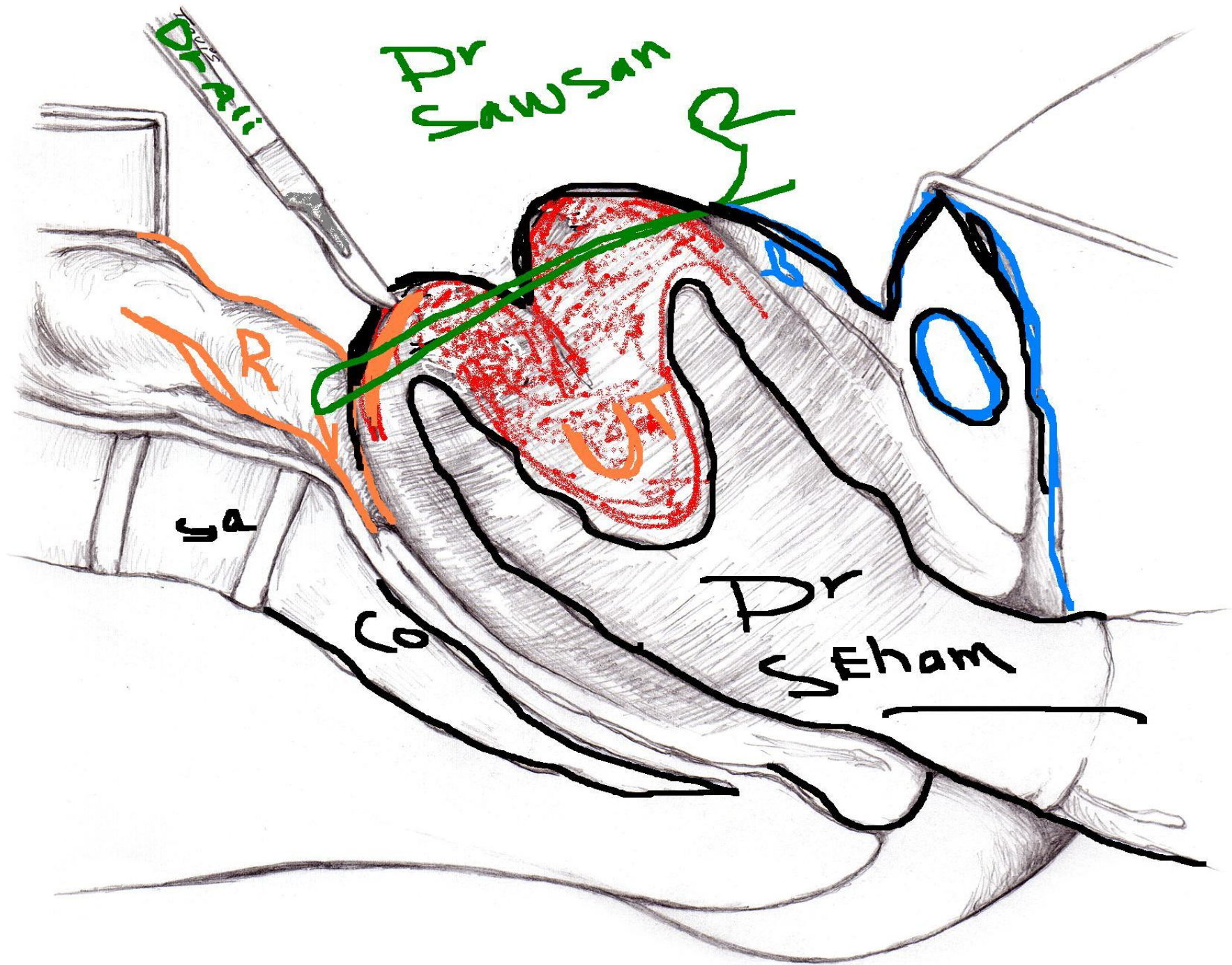


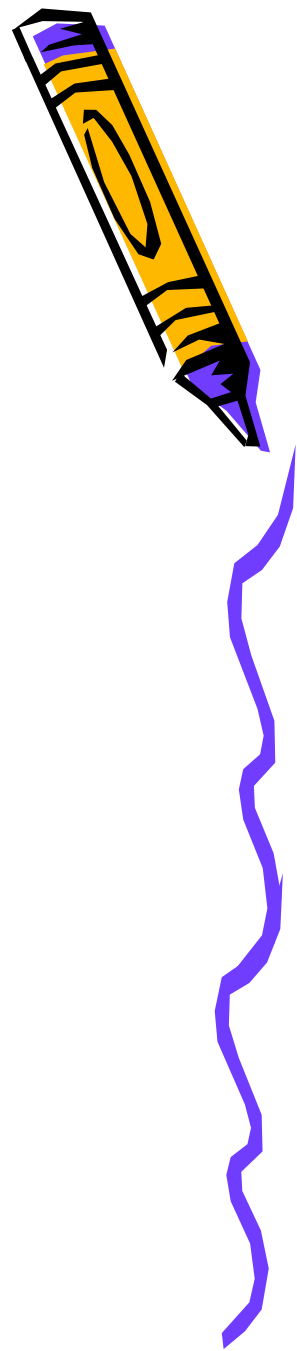
- After preparation, two line was quickly set for fluid and blood transfusion
- . A manual reduction was attempted under general anesthesia without obtaining any positive results.

### The realization of laprotomy

- allowed a progressive reduction using the Huntington technique.
- Considering the edema and the disturbed anatomy( HAULTINS PROCEDURE) was performed as shown in the figure
- it is a modified haultins operation as we did the followings
- 1- we cut the constriction ring in a point away from the vagina it means at the uterine wall and we extend up to ward the fundus
- 2- as we go up in the incision from time to time we try to reposition the uterus in order to prevent more harm to it
- 3- extra step which has been not mentioned in the haultins procedure is that we put sling of catgut that was tied from the fundus to the rectus sheath in order to prevent re inversion







- Finally, the postoperative follow
- was simple.

• Thank you

